

IN THE DRAWINGS

The attached sheets of drawings includes changes to Figs. 1, 2, 4, 6, 22, and 25.

These sheets, which includes Figs. 1, 2, 4, 6, 22, and 25, replace the original sheets that included Figs. 1, 2, 4, 6, 22, and 25.

Attachment: Replacement Sheets

### REMARKS

Favorable reconsideration of this application, as presently amended and in light of the discussion, is respectfully requested.

Claims 10-14 and 22-36 are currently pending. Claims 10-13 and 22-24 have been amended; Claims 6, 8, 9, and 21 have been canceled without prejudice; and Claims 26-36 have been added by the present amendment. The changes and additions to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, the drawings were objected to as containing an informality in Figs. 1, 2, 4, 6, 22, and 25; the specification was objected to regarding the informalities noted in the drawings; Claim 21 was rejected under 35 U.S.C. § 112, first paragraph, regarding the limitation "each of the component waveforms except for a low frequency of a final level"; and Claims 6, 8-14, and 21-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,128,413 to Benamara (hereinafter "the '413 patent") in view of U.S. Patent No. 5,684,693 to Li (hereinafter "the '693 patent").

Applicants respectfully submit that the objection to the specification and drawings is rendered moot by the present amendment to the drawings. The drawings have been amended as suggested in the Office Action to correct the noted informalities.

Applicants respectfully submit that the rejection of Claim 21 under 35 U.S.C. § 112, first paragraph, is rendered moot by the present cancellation of that claim.

Applicants respectfully submit that the rejections of Claims 6, 8, 9, and 21 under 35 U.S.C. § 103 are rendered moot by the present cancellation of Claim 21.

The present amendment also sets forth new Claims 26-36 for examination on the merits. New Claim 26 incorporates the limitations recited in previous Claims 21, 6, and 8. In addition, new Claim 27 recites limitations recited in previous Claims 21, 6, and 9. Further, Claims 10-13 and 22-25 have been amended to depend from new Claim 26, while Claims 6,

8, and 9 have been canceled without prejudice. In addition, new Claims 28-36, which depend from new Claim 27, have been added. New Claims 26-36 are supported by the originally filed specification and do not add new matter.<sup>1</sup>

New Claim 26 is directed to a data compression system for compressing original time series data with a various waveform, comprising: (1) a compression unit configured to generate a compression code by compressing the original time series data without damaging characteristics of waveform information in the various waveform, the waveform information including a signal with a various change including one of a step-like signal change and a local signal average value; (2) a transmitting unit configured to transmit the compression code through a network; and (3) a decompression unit being interconnected through the network with the transmitting unit. Further, new Claim 26 recites that the compression unit is configured to perform a wavelet transform to the original time series data by using a mother wavelet function to decompose the original time series data into a predetermined level number of component waveforms, each of the waveforms of each level having local peak value data, to extract at least one of the local peak value data of the each of the component waveforms, to refer to a mother wavelet code transform table by using a mother wavelet function code corresponding to the mother wavelet function to extract a transform code. Further, Claim 26 recites that the compression code includes the extracted local peak value data, one of the component waveforms having a low frequency of the final level, the transform code, and the number of decomposition levels, and that the extracted local peak value data includes a peak value which is not less than a predetermined threshold value thereof and a position and a data-frame of each level thereof. In addition, new Claim 26 recites that the decompression unit comprises a receiving unit configured to receive the transmitted compression coded, and an inverse wavelet transform unit configured to perform

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<sup>1</sup> See, e.g., original Claims 1-9.

an inverse wavelet transform to the compression code. New Claim 26 is supported by the originally filed specification and does not add new matter.<sup>2</sup>

Applicants respectfully submit that new Claim 26 (and dependent Claims 10-14 and 22-25) patentably define over any proper combination of the '413 and '693 patents.

The '413 patent is directed to a method and apparatus for compressing data using a technique for quantization and encoding referred to as Mapping through Interval Refinement (MIR). Further, the '413 patent discloses that the discrete wavelet transform may be used to compress the data. However, Applicants respectfully submit that the '413 patent fails to disclose that the compression code includes the extracted local peak value data, one of the component waveforms having a low frequency of the final level, the transform code, and a number of decomposition levels, as recited in new Claim 26. In this regard, Applicants note that the Office Action admits that the '413 patent fails to disclose one of the component waveforms having a low frequency of the final level.<sup>3</sup>

The '693 patent is directed to a data compression apparatus for use with the band-limited data transmission channel, which finds particular application in the drilling of oil wells. In particular, the '693 patent discloses means for transforming time series data into the wavelet domain, thresholding the wavelet coefficients, and transmitting the coefficients to a receiver. As shown in Figs. 3 and 5, the '693 patent discloses a downhole processor 28 that includes a wavelet compressor unit 56 that determines whether an absolute value for every wavelet coefficient  $a(k)_n$  ( $n=0, \dots, N$ ), including the low frequency of the final level, equals or exceeds the threshold value  $T$  or not. When the absolute value of the wavelet coefficient, including the low frequency of the final level, equals or exceeds the threshold value  $T$ , the wavelet coefficient is recorded in the data block 62.<sup>4</sup> Thus, the '693 system may cause data

<sup>2</sup> See, e.g., original Claims 1-6 and 8.

<sup>3</sup> See page 5 of the outstanding Office Action.

<sup>4</sup> See, e.g., Figure 5 of the '693 patent.

degradation by losing information at the lowest frequency. However, Applicants respectfully submit that the '693 patent fails to disclose that the compression code generated by the compression unit includes the extracted local peak value data, one of the component waveforms having a low frequency of a final level, the transformed code, and a number of the composition levels, as recited in new Claim 26. In particular, Applicants respectfully submit that the '693 patent fails to disclose that the compression code includes one of the component waveforms having a low frequency of a final level, as recited in Claim 26. At most, the '693 patent discloses the sending of local peak information for each waveform of each level.

Accordingly, no matter how the teachings of the '413 and '693 patents are combined, the combination does not teach or suggest a compression code that includes extracted local peak value data, one of the component waveforms having a low frequency of a final level, the transformed code, and a number of the decomposition levels, as recited in new Claim 26. Thus, Applicants respectfully submit that new Claim 26 patentably defines over any proper combination of the '413 and '693 patents.

Independent Claim 27 recites limitations analogous to the limitations recited in new Claim 26. Accordingly, for the reasons stated above for the patentability of Claim 26, Applicants respectfully submit that new Claim 27 (and dependent Claims 28-36) patentably define over any proper combination of the '413 and '693 patents.

Thus, it is respectfully submitted that independent Claims 26 and 27 (and all associated dependent claims) patentably define over any proper combination of the '413 and '693 patents.


Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

Customer Number  
**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 06/04)  
EHK/KMB:law

  
Eckhard H. Kuesters  
Attorney of Record  
Registration No. 28,870  
Kurt M. Berger, Ph.D.  
Registration No. 51,461

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